

## OLYMPIC COAST NATIONAL MARINE SANCTUARY

**A Report for Sanctuary Advisory Council Members**

**Reporting Period: Mar. 19, 2016- May 13, 2016**

### ABOUT THE SANCTUARY

Olympic Coast National Marine Sanctuary spans 3,189 square miles of marine waters off the rugged Olympic Peninsula coastline. The sanctuary extends 25 to 50 miles seaward, covering much of the continental shelf and several major submarine canyons.

The sanctuary protects a productive upwelling zone home to numerous marine mammal and seabird species, diverse populations of kelp and intertidal algae, and thriving invertebrate communities. The sanctuary is also rich in cultural resources, with over 150 documented historical shipwrecks and the vibrant contemporary cultures of the Makah, Quileute and Hoh Indian Tribes, and the Quinault Nation.

Nation is one of the four Coastal Treaty Tribes adjacent to Olympic Coast National Marine Sanctuary and co-managers the ocean resources.

## OFFICE REPORT

### OLYMPIC COAST NATIONAL MARINE SANCTUARY NEWS AND PROGRAM UPDATES

Organized by Olympic Coast National Marine Sanctuary (OCNMS) management plan priority areas.

### FULFILL TREATY TRUST RESPONSIBILITY

#### Quileute Tribe Celebrates 9<sup>th</sup> Annual Welcoming the Whales Ceremony

On April 1, the Quileute Tribe celebrated their cultural connection to the ocean during their annual *Welcoming the Whales* ceremony. Youth attending Quileute Tribal School provided an offering to the gray whales as they migrated past these tribal lands. This year, as the ceremony took place, several gray whales frolicked in the surf of First Beach in La Push for the duration of the event. Quileute Tribal School students participated in traditional songs, dancing and drumming led by tribal elders and council members. Quileute Tribal



## ACHIEVE EFFECTIVE AND COORDINATED MANAGEMENT

### Law Enforcement Technical Advisory Committee Meets

Olympic Coast National Marine Sanctuary (OCNMS) Law Enforcement Technical Advisory Committee (LETAC) held a bi-annual meeting to discuss OCNMS enforcement issues. The LETAC is made up of NOAA Office of Law Enforcement, OCNMS, Washington Department of Fish and Wildlife, and the United States Coast Guard. These agencies all have a role in enforcement activities within the sanctuary. For this meeting Washington Department of Ecology was invited to attend to discuss their role in enforcing state regulations related to oil spills in state water, including those of the sanctuary.

### Sanctuary Staff Members Train for Oil Spills

Olympic Coast National Marine Sanctuary (OCNMS) conducted in-house training on how to respond to oil spills and other incidents in the sanctuary. The training served as the required eight-hour refresher training under OSHA requirements for Hazardous Waste Operations and Emergency Response (HAZWOPER) standard. In addition to HAZWOPER training material, the course focused on specific OCNMS staff tasks for both small and larger incidents. A trainer from NOAA's Office of Response and Restoration conducted a live demonstration of NOAA's Pacific Northwest Environmental Response Management Application (ERMA). The ERMA application is designed as an aid in spill preparedness and planning. OCNMS will use it as a resource in responding to sanctuary incidents.

### Sanctuary Leadership Sets Strategic Course

For a number of years, Olympic Coast National Marine Sanctuary has been partnering with Feiro Marine Life Center and the City of Port Angeles to develop a shared marine discovery center. The partners are investigating the feasibility of incorporating this new, improved facility into the City's Waterfront Development Project, specifically to be built on City Pier. Partners sought input from the public, via Public Studios and Workshop, for their suggestions and ideas on future

amenities for City Pier. A shared marine discovery center would act as a gateway for outreach and education about the marine ecosystems of the Olympic Peninsula and serve as a modern learning center for the community and guests to the region.

### **Olympic Coast National Marine Sanctuary Participates in National PrepaArathon! Day**

Olympic Coast National Marine Sanctuary (OCNMS) NOAA Corps Officer ENS Alisha Friel presented emergency preparedness to fellow staff in recognition of America's PrepareAthon! She highlighted natural disasters most likely to occur in our region, and tied this to OCNMS facilities Occupant Emergency Plan (OEP), which includes instructions on what to do/where to go in the event of an emergency, including winter storms, earthquakes, volcanic eruption, wildfire and more. Staff watched an instructional video on preparedness and response in the event of an active shooter.

## **IMPROVE OCEAN LITERACY**

### **EarthEcho International Profiles Neah Bay in Expedition: Shell Shocked**

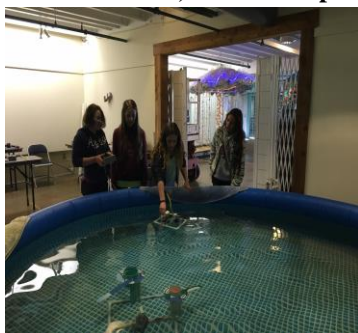
Philippe Cousteau Jr.'s EarthEcho International, a leading nonprofit organization dedicated to equipping youth with resources to act now for a sustainable future, has released a collection of adventure-inspired educational resources and videos profiling a new generation of environmental champions tackling the growing issue of ocean acidification. Last November, EarthEcho International founder Philippe Cousteau traveled along Washington's coast, connecting with scientists and local youth to highlight the impact of rampant carbon emissions on critical marine ecosystems and adjacent coastal communities. Olympic Coast National Marine Sanctuary and Makah Tribe Fisheries staff, Makah Tribe fishermen, and Neah Bay High School students are featured in the suite of resources. Educators and students can access EarthEcho Expedition: Shell Shocked materials online at [www.EarthEcho.org](http://www.EarthEcho.org).



### **Tracking Southern Resident Killer Whales in Olympic Coast**

On March 25, Lynne Barre of NOAA Fisheries presented on southern resident orcas as part of a free, evening lecture speaker series between NOAA Olympic Coast National Marine Sanctuary and Feiro Marine Life Center featuring our local orcas. While much is known about their habitats and behavior in the summer months, scientists have long wondered where the endangered southern resident orcas traveled and ate during the winter months. Recent satellite tagging has allowed researchers the opportunity to see the winter foraging range of these whales and their use of Olympic Coast National Marine Sanctuary. Threats to the orcas were discussed, highlighting prey availability, contaminants, and vessels and noise. For more information on 2015 Southern Resident Killer Whale Satellite Tagging, visit: [www.nwfsc.noaa.gov/research/divisions/cb/ecosystem/marinemammal/satellite\\_tagging/blog2015.cfm](http://www.nwfsc.noaa.gov/research/divisions/cb/ecosystem/marinemammal/satellite_tagging/blog2015.cfm)

### **Marine Science, Stewardship and Technology Explored by Forks 6th Graders**



Eighty sixth grade students from Forks, Washington spent the day in Port Angeles at Olympic Coast National Marine Sanctuary (OCNMS) offices and Feiro Marine Life Center (FMLC) to explore our ocean environment at five different ocean stations. Between the partnering campuses, students engaged in scavenger hunts in Olympic Coast Discovery Center, conducted albatross bolus dissection in OCNMS's classroom, built and flew Remotely Operated Vehicles (ROVs), dissected squid at FMLC, and visited FMLC touch tanks and aquatic exhibits. Students were completing a marine mammal unit in their science class. The all-day field trip introduced students to new marine science topics such as marine technology, while enhancing their understanding of the marine environment with hands-on investigations and local resources.

### **USCG and Olympic Coast National Marine Sanctuary Engage Hoh Tribal Youth**

Twenty-two Hoh youth, community members and natural resources staff participated in a half-day orientation at US Coast Guard (USCG) Station Quillayute River, hosted by USCG and Olympic Coast National Marine Sanctuary. Presentations and hands-on activities provided lessons in water safety and resource protection. The group also discussed the importance of regional partnerships – including Olympic Coast National Marine Sanctuary, US Coast Guard, State of Washington, Quinault Nation, and Hoh, Quileute and Makah Tribes - on regional management and coordination of for oil spill prevention and response. The day culminated with a harbor tour aboard USCG vessels where gray whales were seen feeding in the nearshore waters.

### **Olympic Coast National Marine Sanctuary Facebook Page Exceeds 10,000 fans!**

Through breathtaking images, engaging posts and marine conservation information, the Facebook page for Olympic Coast National Marine Sanctuary (OCNMS) reached its 10,000th Facebook fan during the week of April 11-15, 2016. OCNMS sees a global following from the Facebook platform, intrigued with images from our beautiful marine protected area along the west coast of Washington, our stewardship to the ocean environment, and an opportunity to engage in local and regional events if they happen to live or visit the area.

### **Education Staff Participate in Climate Change Interpretation Training**

On April 6-7, Olympic Coast National Marine Sanctuary (OCNMS) education members Nicole Harris and Karlyn Langjahr participated in a National Network for Ocean and Climate Change Interpretation (NNOCCI) training hosted by Woods Hole Oceanographic Institute, in Falmouth, Massachusetts. NNOCCI designs semester-long online and in-person trainings with peer groups of 22 informal science educators on strategic framing. Participants represent various zoos, aquariums, science centers or other types of visitors centers from around the U.S. and join as a team in a Study Circle. Their second meeting dealt with “Communicating Climate and Ocean Science for Public Engagement” and consisted of lessons to help knowledge “stick” with visitors and move from having knowledge to being part of solutions. Experts on climate change, sea level rise and ocean acidification shared their research, and NNOCCI participants received a tour of Jeff Donnelly’s laboratory. Nicole and Karlyn also visited New England Aquarium in Boston (NEAq), and met with NEAq’s Exhibit Designer to view the new (in-progress) Olympic Coast National Marine Sanctuary exhibit. NNOCCI is funded by National Science Foundation, New England Aquarium, and partners with Woods Hole Oceanographic Institute, Penn State University and NewKnowledge.org.



### **NatureBridge Olympic Hosts Sanctuary Education Staff for Education Programs**

Olympic Coast National Marine Sanctuary (OCNMS) education staff presented an overview of national marine sanctuaries and OCNMS to high school students and teachers from Mountlake Terrace High School, followed by ocean acidification education. Students learned about the underwater treasures of Olympic Coast and explored how ocean acidification is impacting our marine environments and organisms. They also learned what actions we can all take to reduce our carbon footprint. OCNMS was invited the following month to provide sixth through eighth grade students and their teachers with a similar overview of the National Marine Sanctuary System, with marine mammal and marine debris education. Students learned about the twenty-nine different marine mammal species that use Olympic Coast habitats, as well as the harmful impacts of marine debris on marine wildlife and ways to prevent it.

### **Annual Junior Ranger Day Celebration Visited by Sanctuary Sam**

On April 16, Olympic Coast National Marine Sanctuary (OCNMS) education staff supported Olympic National Park’s (ONP) Junior Ranger Day with a mock intertidal survey and a visit from Sanctuary Sam. Hundreds of local and visiting families attended the event at ONP’s Visitor Center in Port Angeles, Washington. Visiting youth engaged in a variety of activities, including the mock intertidal surveys with OCNMS, fire crews, and Interpretive and Law Enforcement rangers from ONP. After youth attended the available activities, they received their official Junior Ranger badge, committing to their role as stewards of our national parks and national marine sanctuaries.



### **Suquamish Tribe Hosts Earth Day Youth Summit on Climate and Ocean Change**



On April 22, Suquamish Tribe hosted “Indigenous Youth Summit on Climate Change and Ocean Change” at the House of Awakened Culture as part of Ecosystem Pen Pals program. Ecosystem Pen Pals is a cultural and natural history exchange program that brings together indigenous high school students from different regions in the Pacific Rim – the Hawaiian Islands, American Samoa and the western coast of Washington state. Project partner, Olympic Coast National Marine Sanctuary (OCNMS) staff introduced the program and each of the six schools participating in the event. Students from each school provided a short presentation on ocean and climate change and the impacts facing their cultural and natural resources. EarthEcho International was on site to assist in Google Hangout connections with



Kalaehoe High School in Hawaii, and recording the event that will include pictures and a presentation from American Samoa students involved in the project. Students also heard from Ta’Kaiya Blaney, a fifteen year old environmental activist from the Sliammon First Nation in Canada. Ta’Kaiya spoke to an audience of more than 100 youth from Washington state on the role indigenous peoples can play in combating climate change, and sang several of her songs accompanied by Robby Romero of Red Thunder.

Following the youth summit, OCNMS hosted Ta’Kaiya Blaney and Robby Romero at two events over Earth Day weekend. On April 23, Ta’Kaiya and Robby spoke and sang for Makah community members at the Makah Museum, followed by a museum tour and evening dinner hosted by Janine Ledford and her family. On April 25, Taholah School held an all-school assembly where Ta’Kaiya spoke to 100 Quinault Nation students on climate change, sang several of her songs with Robby Romero, and answered questions with the school community. The video of Ta’Kaiya Blaney, singing her song "Turn the World Around" can be found at [www.youtube.com/watch?v=twMWE5z\\_xUU](http://www.youtube.com/watch?v=twMWE5z_xUU). Ecosystem Pen Pals was developed in collaboration with Suquamish Tribe and NOAA’s Office of National Marine Sanctuaries and funded by Suquamish Tribe, National Marine Sanctuaries Foundation and NOAA’s BWET Program.

#### **Olympic Coast Discovery Center Celebrates First Annual Port Angeles Waterfront Day**

Olympic Coast Discovery Center (OCDC) welcomed visitors during the first annual Port Angeles Waterfront Day. Olympic Coast National Marine Sanctuary participated by opening OCDC for the day and hosting one of the clues for the event’s scavenger hunt, which drew nearly 70 visitors. Port Angeles’ Waterfront Day ([www.portofpa.com/Index.aspx?NID=325](http://www.portofpa.com/Index.aspx?NID=325)) was organized by the Port of Port Angeles, involving water-based businesses and organizations in Clallam County to celebrate the city’s waterfront and discover one of the Northwest’s harbors in fun and educational way. The event was well-received, and coincided with other local events such as the Port Angeles Kayak and Film Festival April 22-24.

#### **4H Dives Into Science Technology Engineering and Math With Underwater Robotics**

Olympic Coast National Marine Sanctuary (OCNMS) staff introduced underwater robotics to a local 4H group focusing on Science Technology Engineering and Math (STEM). Students, along with their parent mentors, received a brief overview of how Remotely Operated Vehicles (ROVs) are used as a research tool in OCNMS and other ways to conduct ocean research, as well as the basic physics of ROVs in the water. Following the overview, student teams came up with a hull design and built their own student ROVs, tested them for balance and buoyancy, and piloted them in the test pools. Students interested in ROVs and marine technologies could sign up for upcoming summer Marine Technology camps co-led by OCNMS and Feiro Marine Life Center.

#### **Sanctuary Participates in Annual Grays Harbor Shorebird and Nature Festival**

In celebration of the spring migration of shorebirds in Grays Harbor County, Grays Harbor Audubon Society, Grays Harbor National Wildlife Refuge, and the City of Hoquiam worked with fourteen local sponsors to organize the Annual Grays Harbor Shorebird and Nature Festival on May 6-8 ([www.shorebirdfestival.com/](http://www.shorebirdfestival.com/)). This annual festival is timed to align with the annual migration of hundreds of thousands of shorebirds as they pause at the Grays Harbor estuary to feed and rest before continuing their journey to their nesting grounds in the Arctic. Olympic Coast National Marine Sanctuary (OCNMS) hosted an informative and interactive booth focused on the harmful effects of marine debris in the environment. OCNMS engaged festival attendees, both adults and children, in an albatross bolus dissection to emphasize the impacts of marine debris on the marine food web. Participants were able to further develop stewardship ideas for the environment by brainstorming personal actions that we can all partake in to help our environment and its inhabitants. Children celebrated the oldest known bird in the wild and perhaps the most famous Laysan albatross, Wisdom, by drawing a picture of her while learning about the many unique features of both Laysan albatrosses and black-footed albatrosses.



## **CONDUCT COLLABORATIVE RESEARCH, ASSESSMENTS AND MONITORING TO INFORM ECOSYSTEM-BASED MANAGEMENT**

#### **NOAA Ship *Rainier* Finds Dramatic Seascapes and Methane Plumes Exploring Quinault Canyon**

A team of experts from the College of Charleston, University of Washington and Oregon State University contributed to the NOAA-led, multi-disciplinary survey of Quinault Canyon in Olympic Coast National Marine Sanctuary. The survey gathered data for a host of research projects and ocean management activities and collected swath bathymetry, acoustic backscatter and water column data. Data revealed rocky outcrops along the canyon rim and a remarkable number of methane plumes throughout the water column. The *Rainier* survey sets the stage for future ground-truthing surveys by Remotely Operated Vehicles that will further investigate the release of methane at different depths and the presence of biogenic habitats on the previously unmapped ridges of the deep canyon.

### **Olympic Coast Partners Make Progress on Habitat Framework Initiative**

For over two years, the Intergovernmental Policy Council, Olympic Coast National Marine Sanctuary, and other partners have collected Washington seafloor substrate and geophysical data as part of the Habitat Framework Initiative. The data have been characterized in NOAA's Coastal and Marine Ecological Classification Standard (CMECS). NatureServe, an international biodiversity organization, has been contracted to combine the two data layers into CMECS Ecological Marine Units (EMUs), a geophysical expression of the seafloor's structure and overlying sediments. This acts as the first measurable, applicable product for use in marine resource management. The goal of the Habitat Framework is to build an ecosystem-based monitoring and mapping foundation for 10,000 square miles of the state's outer coast. EMUs are the first products that will test the function and applicability of broad-scale ecosystem mapping programs within the Habitat Framework concept.

### **Ocean Exploration Trust's Expeditions in West Coast National Marine Sanctuaries**

For much of the 2016 field season, the E/V *Nautilus* operated by Ocean Exploration Trust will be working at and in collaboration with national marine sanctuaries along the West Coast. The E/V *Nautilus* is equipped with a remotely operated vehicle to record imagery and collect samples from ocean depths, sonar for seafloor mapping, and technical capacity for a Scientist Ashore program to engage shore-based audiences, including coastal schools. Operations on the first leg of their field season in early June will be in or near Olympic Coast National Marine Sanctuary. In addition to exploration of methane seep areas, mission objectives include search for the SS *Coast Trader*, a U.S. merchant vessel sunk by a Japanese submarine during World War II, and a dive to collect the first imagery from the seafloor of the Quinault Canyon within the sanctuary.

### **Science Communication Workshop for Summer 2016 *Nautilus* Expedition Through West Coast National Marine Sanctuaries**

The Office of National Marine Sanctuaries (ONMS) participated in the April 18-21 *Nautilus* Expedition workshop at the Ocean Exploration Trust offices in Rhode Island. The workshop brought together more than 60 scientists, educators and expedition members for the 2016 *Nautilus* Exploration Program on board Exploration Vessel *Nautilus*. Sessions included overviews of the scientific objectives of individual cruises, programs and outreach goals, and trainings in state-of-the-art telepresence technologies. Funded through NOAA's Office of Exploration and Research, the expedition begins May 12 in Canadian waters, and travels through all five West Coast national marine sanctuaries before ending September 12 in Southern California. Targeted research opportunities in sanctuaries will include seafloor mapping and Remotely Operated Vehicle operations for research, surveys and maritime heritage documentation. James Delgado (ONMS), Jan Roletto (GFNMS), Jacqueline Buhl (CINMS) and Sarah Marquis (ONMS) represented ONMS. Bob Embley, NOAA Pacific Marine Environmental Lab, and Katie Wagner, NOAA Office of Ocean Exploration and Research, also attended, and will work closely with ONMS for the expedition.

### **NOAA and National Park Service Collaborate on West Coast Ocean Acidification Survey**

NOAA Pacific Marine Environmental Laboratory's Carbon Program will conduct an oceanographic survey in May/June 2016 along the West Coast with sampling stations between Baja, Mexico and Vancouver Island, British Columbia. In late May simultaneous with the survey off Washington, Olympic Coast National Marine Sanctuary will collect water samples for ocean acidification parameter analysis (dissolved inorganic carbon, total alkalinity, dissolved oxygen, nutrients). These data will provide a linkage between long-term, shore-based ocean acidification monitoring conducted by the National Park Service, the survey sampling stations, and the sanctuary's seasonal oceanographic moorings. Sanctuary efforts will support the collaboration between the National Park Service and NOAA to maximize utility of each organizations' ocean acidification monitoring for broad area analysis, and also enhance the utility of sanctuary oceanographic mooring data for use in ocean acidification models.

### **R/V *Tatoosh* Completes First Phase of Yard Upgrades**

Olympic Coast National Marine Sanctuary's primary research vessel *Tatoosh* is undergoing a significant yard period this year with improvements to update many of its core systems and also to improve the safety and habitability of the vessel. *Tatoosh* has completed the first phase of this two-phase yard period after the field season ended in November. New navigation lights, a new floodlight, and a few needed improvements to the hull and outfitting to reduce leakage and hull wear were added.

## **CONSERVE NATURAL RESOURCES IN THE SANCTUARY**

### **Volunteers Remove Marine Debris in Washington Coast Cleanup Earth Day Event**

On April 23, more than 1,400 volunteers headed to the beach to remove marine debris from Washington's coast. Volunteers were able to successfully remove over 20 tons of marine debris off of more than 50 beaches along the Strait of Juan de Fuca and the outer coast of Washington. Olympic Coast National Marine Sanctuary staff organized volunteers at their regular registration station on the Makah Tribe's Hobuck Beach, in Neah Bay. The station coordinated cleanups at Hobuck, Sooes, Shi Shi and Point of the Arches beaches. The sanctuary is a founding member of Washington CoastSavers and contributes

significantly to the organization's long range planning, funding and event coordination. Following the cleanup, volunteers gathered in celebration and were treated to BBQ's at registration stations. Later that evening, roughly 70 volunteers turned out for the Third Annual River and Ocean Film Festival in Forks, Washington for continued celebration of the ocean and Washington's coast. The festival featured 13 short films produced by both local and non-local filmmakers, all showcasing the beauty and power of the marine environment.



### **Area to Be Avoided 2015 Voluntary Compliance Rate Remains High**

Olympic Coast National Marine Sanctuary (OCNMS) has published their annual report on Area to be Avoided (ATBA) compliance and reports an industry compliance of approximately 97.7% in 2015. Shortly after OCNMS's designation in 1994, the International Maritime Organization designated the ATBA off the coast of Washington to reduce the risk of marine casualties including oil spills, and the resulting damages to sanctuary resources. All vessels over 400 gross tons are requested to stay outside the ATBA. This applies to vessel transits and does not apply to vessels that are conducting operations in the area, such as fishing or research. The sanctuary has an outreach and monitoring program to maintain a traditionally high level of compliance. The report can be downloaded at: [http://olympiccoast.noaa.gov/protect/incidentresponse/2015\\_ais.pdf](http://olympiccoast.noaa.gov/protect/incidentresponse/2015_ais.pdf)

### **Oil Spill Response in Makah Marina**

While conducting an internal transfer of fuel alongside the pier in the Makah Marina, F/V *California Horizon* caused a spill of diesel fuel in the harbor. The Makah Tribe, U.S. Coast Guard, Washington Department of Ecology and the National Response Corporation responded to the spill. An estimated 500-1,000 gallons of fuel was spilled and is believed to have been contained within Neah Bay. Given its proximity to Olympic Coast National Marine Sanctuary, staff were notified of the incident and monitored the response.

### **Olympic Coast Provides Overview of Washington Marine Debris Activity to NOAA and State Leadership**

On April 8, the NOAA Marine Debris Program hosted a visit from NOAA Administrator Dr. Kathryn Sullivan in Long Beach, Washington. Congresswoman Jamie Herrera-Beutler from Washington's Third Congressional District attended, as well as representatives from offices of U.S. Senators Murray and Cantwell. Briefings were provided on the Marine Debris Program's efforts in the region, volunteer-based beach cleanups, Japan tsunami marine debris on local shores and associated invasive species response, derelict crab pot removal efforts, tsunami preparedness, and shoreline debris monitoring. Data from Olympic Coast National Marine Sanctuary's citizen science debris monitoring program was featured in news items on Northwest Public Radio and in Seattle Times.

## **UNDERSTANDING THE SANCTUARY'S CULTURAL, HISTORICAL AND SOCIOECONOMIC SIGNIFICANCE**

### **Historical and Maritime Context of Olympic Coast**

Olympic Coast National Marine Sanctuary (OCNMS) Deputy Superintendent George Galasso presented a historical and maritime perspective of OCNMS at the Naval Undersea Museum in Keyport, Washington. The presentation was arranged by Sanctuary Advisory Council member and U.S. Navy representative, George Hart, as part of an outreach effort by OCNMS and the advisory council to the regional Naval community. The presentation included information on pre-contact, the European Colonial Period, the American Period with an additional emphasis of role of U.S. Maritime Services, including the U.S. Navy, in settling and protecting the Olympic Coast.

## **SANCTUARY PERMITTING**

### **Issued Permits and Authorizations**

**OCNMS-2016-001** – Michael Zieserl, JOA Surveys

**Project Title:** Temporary NOAA Tide Gauge at Tskawahyah Island (Cannonball Island)

**Permitted Activity:** Altering or disturbing the seafloor in connection with the placement, operation and removal of a temporary NOAA tide gauge.

**Project Location:** The majority of the installation will be on Makah lands on Tskawahyah Island. A small portion of the installation will extend below mean lower low water into the sanctuary.

**Permit Duration:** Six months, April through September 2016

**Comment:** The applicant reports that approval for a single installation has been provided by the Makah Tribe. A modified request for a duplicate/redundant installation has not been approved by the Makah. OCNMS provided a permit for a single installation and would consider an amendment for a duplicate installation pending the Makah determination. Impacts to intertidal resources will be minor (area impacts) and temporary. All equipment will be removed at the end of the project.

**OCNMS-2016-003** – Florian Graner, Sealife Productions

**Project Title:** Intertidal StormCam

**Permitted Activity:** Altering or disturbing the seafloor in connection with installation of two base plates for camera housing in the intertidal area

**Project Location:** Sokol Point, north of Hole in the Wall/Rialto Beach

**Permit Duration:** Fourteen months, April 2016 through June 2017

**Comment:** This project is a collaboration with Olympic National Park. The permittee may seek a permit amendment for an alternative installation location if Makah permission is granted.

**Pending Permit Requests**

**OCNMS-2016-002** – Brad Hanson, NMFS

**Project Title:** Determining the distribution of killer whales and other cetaceans in the coastal waters of the U.S. using acoustic recorders.

**Permitted Activity:** Altering or disturbing the seafloor in connection with the deployment of seven moorings in OCNMS

**Project Location:** Seven mooring locations widely distributed in the sanctuary

**Permit Duration:** Five years, through 2020

**Comment:** There is concern about repeated anchor abandonment at the same locations for multiple years, an issue identified by Quileute Natural Resources. An analysis of vessel capabilities and availability, field conditions, and costs associated with fully retrievable anchor systems will be conducted before permit terms are defined and this permit is issued.

**OCNMS-2016-004** – Shawn Larson, Seattle Aquarium

**Project Title:** Use of Drones for Sea Otter Foraging Data Collection

**Permitted Activity:** Overflight with drone within sanctuary's overflight restriction zone

**Project Location:** Nearshore coastal areas where sea otters are distributed; proposed for launch from Makah lands and Giant's Graveyard/Toleak area if Park permission granted.

**Permit Duration:** One year, through June 2017

**Comment:** Minimal concern for wildlife disturbance by drone. Restrictions on drone launch from National Park lands may limit areas of operation granted in sanctuary permit. Need to verify FAA approval/certification for drone use and Makah approval for launch from Makah lands.

**OCNMS-2014-004** – John Mickett, University of Washington

**Project Title:** A Multi-platform, High-resolution Coastal Ocean Observing Sensor Array for Researching Washington Coastal Waters and Ecosystem Response to Climate Change

**Permitted Activity:** Altering or disturbing the seafloor in connection with the placement, operation and retrieval of two oceanographic moorings.

**Project Location:** Approximately 15nm WNW of La Push, Washington

**Permit Duration:** Five years, May 2014 to May 2019

**Comment:** A permit amendment has been requested to deploy a third mooring in summer 2016 to get functional pH meter, plus current meter and thermistors in the water. A fully recoverable mooring and anchor will be used.

**OCNMS-2016-005** – Heather Reed, Washington Department of Fish and Wildlife

**Project Title:** Coastal razor clam population assessment, Dungeness crab management, enforcement and derelict gear recovery surveys in Olympic Coast National Marine Sanctuary

**Permitted Activity:** Razor clam stock assessment work at Kalaloch Beach; overflights within the sanctuary's overflight restriction zone for crab fishery enforcement and survey for derelict crab gear to support removal operations

**Project Location:** Coast-wide within the sanctuary

**Permit Duration:** Five years, through May 2021

**Comment:** The previous permit covering same activities (OCNMS-2011-003) expired before renewal so a new permit will be issued. This permit also supports derelict crab gear assessment and removal efforts by The Nature Conservancy in collaboration with the Quileute Tribe and Quinault Nation.



## LEARN ABOUT YOUR SANCTUARY / NATURAL HISTORY

### Sea Otter Reported in Strait of Juan de Fuca

Coastal Observation and Seabird Survey Team volunteers Ken and Mary Campbell reported a live sea otter sighting in the Strait of Juan de Fuca about a half mile west of the Sekiu River. According to their report, the sea otter was close to the shore and easily identifiable. Currently, the Washington sea otter population is distributed primarily between Pillar Point in the Strait of Juan de Fuca to south of Destruction Island on the outer coast. A few individual sea otters are occasionally seen in Puget Sound and the San Juan Islands, as well as along the Oregon coast. For more on their range, visit: [www.fws.gov/wafwo/sea\\_otters\\_history.html](http://www.fws.gov/wafwo/sea_otters_history.html).



Photo Ken & Mary Campbell

### La Niña Watch Issued for 2016

The main feature of La Niña is the opposite of El Niño, cooler-than-average surface waters in the tropical central and eastern Pacific. Cooler waters lead to an intensification of Walker Circulation. La Niña often follows El Niño, although not necessarily every event. Looking at earlier strong El Niño events, both the 1972-73 and 1997-98 El Niño events were followed by a quick transition to long-lasting, strong La Niña conditions. On the other hand, sea surface temperatures following the 1982-83 El Niño bounced around just a bit below zero for more than a year, before settling into a moderate La Niña in the fall of 1984.

Almost all of the computer models used for predicting climate anticipate a transition to La Niña during the second half of this year. Last month, an error was detected that was causing two models to produce a suspect forecast of a return to El Niño conditions. That error has been corrected, and these two models are now in line with the rest. Scientists are asking what La Niña could mean for the U.S. La Niña impacts on weather are roughly the opposite of El Niño, but not precisely. Over the next couple of months as this potential development is tracked, researchers and observers will retrieve more details on the typical ways La Niña can affect global circulation, and therefore weather around the world.

La Niña can enhance the Atlantic hurricane season, primarily by reducing vertical wind shear, or how much the wind changes higher into the atmosphere. It is difficult for hurricanes to survive if there is a lot of change in the speed and direction of the wind from one level to the next. NOAA's Hurricane Season Outlook will be released in May to follow those phenomena. Even though La Niña means cooler water in the central and eastern Pacific, it results in warmer water in the western Pacific, which will likely extend the ongoing global coral bleaching, already the longest bleaching event on record. Coral can tolerate shorter periods of high temperatures, but global warming has raised the average temperature experienced. When the stress of El Niño or La Niña is added, the chance of widespread coral bleaching increases. A "La Niña Watch" has been issued because conditions are favorable for its development within the next six months.

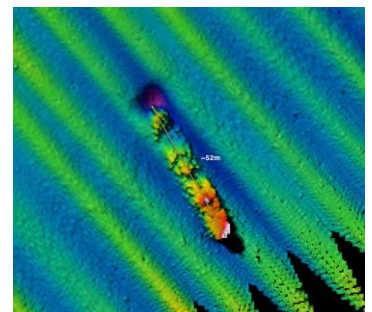
Nearly all models predict further weakening of El Niño, with a transition to El Niño Southern Oscillation (ENSO)- neutral likely during late spring or early summer 2016. ENSO is periodic variation in winds and sea surface temperatures over the tropical eastern Pacific Ocean, affecting much of the tropics and subtropics. The warming phase is known as El Niño and the cooling phase as La Niña. Southern Oscillation is the accompanying atmospheric component, coupled with the sea temperature change: El Niño is accompanied with high low air surface pressure, and La Niña with low air surface pressure in the tropical western Pacific. The two periods last several years each (typically three to four) and their effects vary in intensity. The chance of La Niña increases during the late summer or early fall in 2016. The official forecast is consistent with the model forecasts, also supported by a historical tendency for La Niña to follow strong El Niño events.

For more information, see [www.climate.gov/news-features/blogs/enso/april-2016-el-ni%C3%B1o-la-ni%C3%B1a-update-what-goes-%E2%80%A6](http://www.climate.gov/news-features/blogs/enso/april-2016-el-ni%C3%B1o-la-ni%C3%B1a-update-what-goes-%E2%80%A6). For a weekly ENSO update, visit: [www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/enso\\_advisory/index.shtml](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/index.shtml)

## REGIONAL / NATIONAL MARINE SANCTUARY SYSTEM NEWS

### Discovery of WWI Era Navy Tug USS *Conestoga*

On March 23, NOAA and the U.S. Navy announced the discovery of the wreck of the fleet tug USS *Conestoga* (AT 54) in the waters of Greater Farallones National Marine Sanctuary. *Conestoga* went missing after departing San Francisco Bay on March 25, 1921, leading to the largest air-sea search by the Navy until the disappearance of Amelia Earhart over the Pacific 15 years later. *Conestoga* was never found, and was declared lost on June 30, 1921 along with its crew of 56 men. The wreck was initially relocated as a sonar target by a contracted





Coast Survey cruise in 2009, and confirmed as a wreck on a Maritime Heritage Cruise in September 2014 led by MHP Director James Delgado and West Coast Regional Maritime Heritage Coordinator Robert Schwemmer. Working with Greater Farallones and Cordell Bank national marine sanctuaries and West Coast regional staff, Delgado and Schwemmer identified the wreck as *Conestoga*, resolving a nearly century-old question of what had happened to the tug and where it lay, a question that had become one of the greatest 20th century maritime mysteries. Coordinating carefully with the U.S. Navy, an October 2015 return mission further documented the wreck. Detailed genealogical research followed to locate families of the 56 lost crew members. The March 23 event included senior NOAA and Navy leadership and families and resulted in extensive international media coverage and strong social media presence. More importantly, the families have found a measure of closure and expressed their gratitude to NOAA, commenting on the comfort of knowing their loved ones are at rest within the waters of a national marine sanctuary. For additional information, including photos of the crew and videos of the wreckage site of the USS *Conestoga* visit: <http://sanctuaries.noaa.gov/conestoga/>.

### **With the Discovery of the USS *Conestoga*, Researchers Have Solved a Mystery That Was Nearly 100 Years Old**

“Harvey Reinbold had just gotten married the year before, and he was hoping to retire from the Navy to settle down with his new wife. Ernest Larkin Jones had a three-year-old daughter who traveled all the way from Rhode Island to California with her mother just to see her father’s ship leave port. George Kaler had just joined the Navy a few years earlier, during World War I, and he was eager to explore the world beyond his tiny Ohio hometown. All were among 56 men who vanished in 1921 aboard the U.S.S. *Conestoga*, a long-lost tugboat that has finally been found—nearly a century after its disappearance. The discovery of the shipwreck off the coast of San Francisco has solved one of the greatest maritime mysteries in the Navy’s history, as neither the fate of the ship nor its crewmembers had been known until now.”

[www.smithsonianmag.com/history/discovery-uss-conestoga-researchers-have-solved-naval-mystery-was-nearly-100-years-old-180958538/?ncid=newsltushpimg00000003&no-ist](http://www.smithsonianmag.com/history/discovery-uss-conestoga-researchers-have-solved-naval-mystery-was-nearly-100-years-old-180958538/?ncid=newsltushpimg00000003&no-ist)

### **After 95 Years, A Navy Ship Lost at Sea With All Hands is Finally Discovered**

“The USS *Conestoga* left the Navy yard at Mare Island, Calif., on Good Friday, 1921, bound for Pearl Harbor, with a complement of 56 sailors. It cleared the Golden Gate at 3:25 p.m. and steamed into the Gulf of the Farallones in heavy seas. The *Conestoga* was a rugged oceangoing tug that had once hauled coal barges for a Pennsylvania railroad. But 17 years after its launch in Baltimore, it had undergone hard use and had a reputation as a “wet boat,” one that took on water easily. At 4 p.m. that day, as the San Francisco light ship recorded big waves and gale-force winds, the *Conestoga* passed Point Bonita and was not heard from again. On Wednesday, 95 years later, the National Oceanic and Atmospheric Administration and the Navy announced that the wreck had been found a few miles from Southeast Farallon Island, just off the California coast.”

[www.washingtonpost.com/local/after-95-years-a-navy-ship-lost-at-sea-with-all-hands-is-finally-discovered/2016/03/22/ebe2e29c-eba7-11e5-b0fd-073d5930a7b7\\_story.html?hpid=hp\\_rhp-more-top-stories\\_no-name%3Ahomepage%2Fstory](http://www.washingtonpost.com/local/after-95-years-a-navy-ship-lost-at-sea-with-all-hands-is-finally-discovered/2016/03/22/ebe2e29c-eba7-11e5-b0fd-073d5930a7b7_story.html?hpid=hp_rhp-more-top-stories_no-name%3Ahomepage%2Fstory)

### **Sanctuary Citizen Science Opportunities Now Highlighted on Sanctuary Website**

Citizen science is a term that describes projects in which volunteers partner with scientists to answer real-world questions. Volunteers can work with scientists to identify research questions, collect and analyze data, interpret results, make new discoveries, develop technologies and applications, as well as solve complex problems. Several of the more robust National Marine Sanctuary System citizen science programs, including COASST and OCNMS’s marine debris monitoring program, are now highlighted online. Making citizen science volunteer opportunities more readily available will likely increase the level of participation, as well as enhance ocean and climate literacy, conservation efforts and ultimately lead to stewardship of these special ocean areas. For more information, visit <http://sanctuaries.noaa.gov/involved/citizen-science.html>.

### **MPA Center Leads U.S. Delegation to Establish Chile-California Cooperation**

On April 11-15, 2016, representatives from the Office of National Marine Sanctuaries (West Coast Region & Marine Protected Areas Center), the National Park Service (NPS) (California) and the U.S. Embassy in Santiago, Chile, traveled to Atacama and Coquimbo regions to discuss future collaboration with Chile while visiting coastal national parks and marine protected areas (MPA). The visit included meetings with regional authorities, technical/scientific discussions with managers of the protected areas and national MPA agencies, and presentations on MPA management experiences from both delegations. The visit was part of the interagency U.S.-Chile agreement on marine and terrestrial protected areas, signed by NOAA/National Ocean Service, NPS, and three Chilean government agencies in 2013. On the last day of activities, both delegations agreed to develop a work plan, which may include: coastal monitoring (including kelp ecosystems), tourism management, ecosystem restoration and invasive species, public participation and



advisory councils, coastal spatial planning, and communications and outreach. Additional activities proposed include MPA governance and remote enforcement technologies. The Chilean organizers also proposed to develop a special session on Humboldt-California current cooperation at the 2017 International Marine Protected Area Congress (IMPAC4) to be hosted in La Serena-Coquimbo, Chile.

## MARINE-RELATED NEWS COVERAGE

### **Puget Sound's Dark Role In Orca Captures**

“SeaWorld says it will end its killer whale breeding program and will stop making the mammals perform tricks for stadium crowds. It’s a historic about-face from the days when SeaWorld hired people to capture wild killer whales in Puget Sound.”  
<http://kuow.org/post/puget-sound-s-dark-role-orca-captures>

### **Up to 13 Million Americans Are at Risk of Being Washed Away**

“Tyrrell County sits just inland from North Carolina’s Outer Banks barrier islands. With 3,600 people living and farming along 400 square miles, it’s an ecologically rich enclave. It also ranks number one among 319 U.S. coastal counties facing long-term risk from rising seas. By 2100, according to a new study, 94 percent of Tyrrell’s future population may be at risk from encroaching seawater.”

[www.msn.com/en-us/weather/topstories/up-to-13-million-americans-are-at-risk-of-being-washed-away/ar-AAgLxqm?li=BBnb4R7](http://www.msn.com/en-us/weather/topstories/up-to-13-million-americans-are-at-risk-of-being-washed-away/ar-AAgLxqm?li=BBnb4R7)

### **Possible Japan Tsunami Boat Washes Onto Oregon Coast**

“Part of a boat that may have traveled across the Pacific after Japan’s 2011 earthquake and tsunami has washed ashore off Oregon’s south coast near Horsfall Beach, north of Coos Bay.

A U.S. Coast Guard helicopter crew spotted the boat on March 16. The crew attached a tracking buoy to the object March 18 and issued a marine advisory.”

[www.statesmanjournal.com/story/tech/science/environment/2016/03/22/possible-boat-tsunami-found-off-oregon-coast/82111534/](http://www.statesmanjournal.com/story/tech/science/environment/2016/03/22/possible-boat-tsunami-found-off-oregon-coast/82111534/)

### **Washington CoastSavers Use 'Voluntourism' To Propel Marine Debris Cleanup**

“What are your plans for getting outdoors this spring? Do they involve a beach? If so, a growing group of coastal-cleanup volunteers wants your help. Washington CoastSavers want you to volunteer just a bit during your vacation — or maybe just as part of your weekend.”

[www.kplu.org/post/washington-coastsavers-use-voluntourism-propel-marine-debris-cleanup](http://www.kplu.org/post/washington-coastsavers-use-voluntourism-propel-marine-debris-cleanup)

### **Forage Fish Off West Coast Get New Protection From Commercial Fishing**

“A federal rule published Monday prohibits West Coast commercial fishermen from targeting eight types of forage fish that help support the broader maritime food chain. Forage fish are pursued in areas of the world where they may be put into feed products for aquaculture, livestock and pet food. This rule intends to preclude such harvests in the 200-mile federal zone off Oregon, Washington and California, so long as there is not enough science to assess the impacts of catching these fish on the marine ecosystem.”

[www.seattletimes.com/seattle-news/environment/forage-fish-off-west-coast-get-new-protection-from-commercial-fishing/](http://www.seattletimes.com/seattle-news/environment/forage-fish-off-west-coast-get-new-protection-from-commercial-fishing/)

### **West Coast Scientists Urge Rapid Action Against Ocean Acidification**

“A panel of ocean scientists from Washington, Oregon and California said Monday that local action on the West Coast — one of the regions of the world hardest hit by ocean acidification — could soften the blow of this rapidly worsening global problem.”

<http://kuow.org/post/west-coast-scientists-urge-rapid-action-against-ocean-acidification>

### **Acidic Pacific: Act now, or West Coast Pays Dearly**

“Buildup of carbon dioxide is changing the chemistry of the world’s oceans, threatening coastal economies and ecosystems -- nowhere more than on the Pacific Coast, according to an expert study released Monday.”

[www.seattlepi.com/local/politics/article/Ocean-acidification-Panel-says-act-now-or-it-7227841.php](http://www.seattlepi.com/local/politics/article/Ocean-acidification-Panel-says-act-now-or-it-7227841.php)

### **Puget Sound's Baby Orcas Are Mostly Boys. That Has Scientists Freaked Out.**

“Scientists were ecstatic. After years of worrying about the killer whale population in Puget Sound, eight baby orcas were born and thriving. Then came photos of their bellies. Most of the babies are boys, they realized.”

[www.opb.org/news/article/puget-sounds-baby-orcas-are-mostly-boys-that-has-scientists-freaked-out](http://www.opb.org/news/article/puget-sounds-baby-orcas-are-mostly-boys-that-has-scientists-freaked-out)

### **Endangered Puget Sound Orcas to Get Personal Health Records**

“The killer whales that spend time in the inland waters of Washington state already are tagged and tracked, photographed and measured. Researchers follow them by drone and by sea, analyzing their waste and their exhaled breath. Now, experts want to add another layer to the exhaustive studies: individual health records for each endangered whale.”

[www.seattletimes.com/seattle-news/endangered-puget-sound-orcas-to-get-personal-health-records/](http://www.seattletimes.com/seattle-news/endangered-puget-sound-orcas-to-get-personal-health-records/)

### **A Million-Dollar Question: As Sea Levels Rise, How Can Coastal Communities Adapt?**

“It’s one of the more dramatic-sounding aspects of climate change: as carbon emissions and other greenhouse gases speed up global warming, sea levels are expected to rise too. And the effects will have widespread impacts locally. Tacoma and Island County are among coastal communities in Western Washington that are already considered vulnerable.”

[www.kplu.org/post/million-dollar-question-sea-levels-rise-how-can-coastal-communities-adapt](http://www.kplu.org/post/million-dollar-question-sea-levels-rise-how-can-coastal-communities-adapt)

### **Washington's Olympic Peninsula Loses 2 Dams and Gains a Wild River – Plus a New Beach**

“The United States is expanding. That was not among the goals when the Elwha River was set free. With the removal of two concrete dams that blocked the river for a century, the Elwha has released a wave of sand that has pushed the shoreline here north toward Canada.”

[www.latimes.com/nation/la-na-washington-wild-river-20160327-story.html](http://www.latimes.com/nation/la-na-washington-wild-river-20160327-story.html)

### **Seeing Firsthand Why Olympic National Park is One of the Nation's Great Wilderness Areas**

“The bald eagle was soaring on an air current above frosty Lake Crescent, its wings spread wide, white head and electric-yellow beak tilted slightly down. It was hunting, and a few seconds later it rocketed toward the surface of the lake. In an instant it was aloft again, carrying a small trout in its talons.”

[www.latimes.com/travel/la-tr-d-nps-olympic-20160327-story.html](http://www.latimes.com/travel/la-tr-d-nps-olympic-20160327-story.html)

### **Toxins May Have Caused Male Killer Whale Baby Boom, Says Researcher**

“The high number of male babies in a group of killer whales living off the coast of British Columbia is cause for concern, researchers say. Eight babies have been born into the southern resident killer whale population since Dec. 30, 2014, but only one of the calves has been confirmed as a female, which could spell trouble for the whales' future.”

[www.cbc.ca/news/canada/british-columbia/killer-whale-sex-ratio-1.3508337](http://www.cbc.ca/news/canada/british-columbia/killer-whale-sex-ratio-1.3508337)

### **Killer Whale Found Dead in B.C. Waters Likely From Local Pod**

“There has been a baby boom among the killer whale population in B.C. and Washington state waters but there is bad news to report. A dead killer whale was found floating off the coast of Vancouver Island near Sooke, B.C. on Thursday.”

[www.digitaljournal.com/science/dead-killer-whale-found-floating-in-waters-near-vancouver-island/article/461215#ixzz44DAWdWbJ](http://www.digitaljournal.com/science/dead-killer-whale-found-floating-in-waters-near-vancouver-island/article/461215#ixzz44DAWdWbJ)

### **Registration Open Now for Coast Cleanup Set for April 23**

“Online registration is open for participation in the Washington Coast Cleanup on April 23. Volunteers can visit [www.coastsavers.org](http://www.coastsavers.org) and select from dozens of beaches to clean from the Long Beach Peninsula to the Olympic Peninsula.”

[www.peninsuladailynews.com/article/20160321/NEWS/303219998/registration-open-now-for-coast-cleanup-set-for-april-2](http://www.peninsuladailynews.com/article/20160321/NEWS/303219998/registration-open-now-for-coast-cleanup-set-for-april-2)

### **Tiny Forage Fish At Bottom Of Marine Food Web Get New Protections**

“Sardines, herring and other small fish species are the foundation of the marine food web — they're essential food for birds, marine mammals and other fish. But globally, demand for these so-called forage species has exploded, with many going to feed the livestock and fish farming industries.”

[www.npr.org/sections/thesalt/2016/04/07/473293477/tiny-forage-fish-at-bottom-of-marine-food-chain-get-new-protections](http://www.npr.org/sections/thesalt/2016/04/07/473293477/tiny-forage-fish-at-bottom-of-marine-food-chain-get-new-protections)

### **Beachcombers Still Finding Likely Tsunami Debris More Than 5 Years After Disaster**

“The big Japanese earthquake and tsunami of 2011 happened more than five years ago, but debris from that disaster is still washing ashore on the Pacific Northwest coast. The chief of the National Oceanic and Atmospheric Administration visited Long Beach, Washington, Friday to hear about the ongoing response.”

[www.opb.org/news/article/japanese-earthquake-2011-oregon-washington-coast/](http://www.opb.org/news/article/japanese-earthquake-2011-oregon-washington-coast/)

### **Plastics Dominate Debris Washing Up on State's Coastal Beaches**

“Several times each week, Russ Lewis and a few friends pick up litter that washes ashore on a 7-mile stretch of ocean shoreline, and most of it is plastics of one kind or another. Some of the stuff, such as the strapping akin to what Northwest crabbers use to wrap around bait — most likely comes from close by. Other items, such as a mannequin head with Japanese



writing — are presumed to be part of the detritus from the March 2011 Japanese tsunami that continues to wash ashore in the Pacific Northwest.”

[www.seattletimes.com/seattle-news/environment/plastics-dominate-debris-washing-up-on-states-coastal-beaches](http://www.seattletimes.com/seattle-news/environment/plastics-dominate-debris-washing-up-on-states-coastal-beaches)

#### **How Satellites and Big Data Can Help to Save the Oceans**

“Over the past century, rampant overfishing, severe pollution, and runaway coastal development have taken a huge toll on the world’s oceans. Now, however, two major advances in global ocean governance are quietly unfolding, offering hope that the early decades of the 21st century will mark a turning point in which humanity can begin to repair the global seas.”

[http://e360.yale.edu/feature/how\\_satellites\\_and\\_big\\_data\\_can\\_help\\_to\\_save\\_the\\_oceans/2982/](http://e360.yale.edu/feature/how_satellites_and_big_data_can_help_to_save_the_oceans/2982/)

#### **Are Southern Resident Killer Whales Too Screwed Up to Survive?**

“Short answer: No. While they're screwed up in just about every way, the southern resident killer whales (SRKW) just need food to survive. With enough Chinook salmon, the SRKW (aka the Salish Sea orca clan) could overcome the many problems that plague them.”

[www.seattlepi.com/local/science/article/Are-southern-resident-killer-whales-too-screwed-7244678.php](http://www.seattlepi.com/local/science/article/Are-southern-resident-killer-whales-too-screwed-7244678.php)

#### **Climate Change Could Limit Salmon Fishing**

“Fishery delegates from Oregon, Washington, California and Idaho are meeting to discuss fishing limits. In the past, aggressive commercial fishing caused the Pacific Fishery Management Council to limit the number of fish people can catch. But this year, it’s more of a climate issue.”

<http://koin.com/2016/04/09/climate-change-could-limit-salmon-fishing/>

#### **Head of NOAA, Kathryn Sullivan Visits Pacific Council**

“Dr. Kathryn Sullivan, the Administrator of the National Oceanic and Atmospheric Administration (NOAA), visited the Pacific Fishery Management Council (Council) meeting in Vancouver, Washington on Saturday, April 9, 2016 and addressed the Council, which is responsible for managing ocean fisheries off Washington, Oregon, and California. Dr. Sullivan is a distinguished scientist, astronaut, and explorer.”

<http://sanjuanislander.com/news-articles/government-news/federal/21564/head-of-noaa-kathryn-sullivan-visits-pacific-council>

## OCNMS ONLINE

Visit our website at: <http://olympiccoast.noaa.gov/>.

Follow us on Facebook and Twitter!

<https://www.facebook.com/usolympiccoastgov>

<https://twitter.com/olympiccoast>

*Please take a few moments to peruse the site. Your feedback is greatly appreciated.*

*Comments and suggestions can be sent to:*

[Jacqueline.Laverdure@noaa.gov](mailto:Jacqueline.Laverdure@noaa.gov).

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## OCEAN-RELATED WEBSITES

National Oceanic and Atmospheric Administration

<http://www.noaa.gov/>

National Ocean Service

<http://oceanservice.noaa.gov/>

Office of National Marine Sanctuaries

<http://sanctuaries.noaa.gov/>

NOAA Marine Debris Program

<http://marinedebris.noaa.gov/>

NOAA Online Media Library

<http://sanctuaries.noaa.gov/photos>

Encyclopedia of National Marine Sanctuaries

<http://www8.nos.noaa.gov/onms/park/>

NOAA Ocean Explorer

<http://oceanexplorer.noaa.gov/>

National Data Buoy Center

<http://www.ndbc.noaa.gov/rmd.shtml>

Washington's Ocean Resources

<http://www.ecy.wa.gov/programs/sea/ocean/index.html>

CoastWatch – West Coast Regional Node

<http://coastwatch.pfel.noaa.gov/>

Northwest Association of Networked Ocean Observing Systems

<http://www.nanoos.org/>

NOAA's Pacific Marine Environmental Laboratory

<http://www.pmel.noaa.gov/>

## OLYMPIC COAST NATIONAL MARINE SANCTUARY

### Learn More About Your Sanctuary

The Sanctuary Office Report is produced bi-monthly by Olympic Coast National Marine Sanctuary in conjunction with sanctuary advisory council meetings. To learn more about the sanctuary, please visit our website at:

<http://olympiccoast.noaa.gov/> .

To learn more about the sanctuary advisory council, please visit:

[http://olympiccoast.noaa.gov/involved/sac/sac\\_welcome.html](http://olympiccoast.noaa.gov/involved/sac/sac_welcome.html).

#### Office of National Marine Sanctuaries (ONMS)

Olympic Coast National Marine Sanctuary is one of the marine protected areas in the National Marine Sanctuary System encompassing more than 170,000 square miles of marine and Great Lakes waters from Washington State to the Florida Keys and from Lake Huron to American Samoa. The system includes thirteen national marine sanctuaries and Papahānaumokuākea and Rose Atoll marine national monuments. Visit the ONMS website at:

<http://sanctuaries.noaa.gov/>.

### Get Involved!

To learn how to get involved in the sanctuary visit:

<http://olympiccoast.noaa.gov/involved/welcome.html>.

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